WHAT IS CLAIMED IS:

1. An object recognition apparatus, comprising:

an input section for inputting a first image set including a predetermined number of images including a first image representing a first target object using a first attribute and a second image representing the first target object using a second attribute different from the first attribute, wherein the predetermined number is two or more;

a feature vector calculation section for calculating a first feature vector in a feature space having at least one filter output value as a vector component, the at least one filter output value being obtained by applying at least one predetermined image filter to at least one predetermined position in the predetermined number of images in the first image set; and

a judgment section for judging whether or not the first target object is categorized into a specific category based on a relationship between the first feature vector and predetermined discriminant parameters.

2. An object recognition apparatus according to claim 1, wherein:

the input section further inputs a plurality of image sets each including the images of the predetermined number, the plurality of image sets including at least one second image set and at least one third image set other than the at least one second image set, each image of the at least one second image set including a third image representing a second target object belonging to the specific category using the first attribute and a fourth image representing the second target object using the second attribute;

the feature vector calculation section further

calculates a feature vector in a feature space having at least one filter output value as a vector component, the at least one filter output value being obtained by applying at least one predetermined image filter to at least one predetermined position in the predetermined number of images in the said input plurality of image sets; and

the object recognition apparatus further includes a learning section for calculating the discriminant parameters so as to discriminate at least one feature vector in the feature space for the at least one second image set from at least one feature vector in the feature space for the at least one third image set.

3. An object recognition apparatus according to claim 2, wherein the learning section defines the feature space by removing at least one dimension from a temporary feature space having a higher number of dimensions than the feature space based on a direction of a normal to a plane for discriminating the at least one feature vector for the at least one second image set from the at least one feature vector for the at least one third image set.

4. An object recognition apparatus according to claim 1, wherein:

the discriminant parameters represent a discriminant surface in the feature space; and

the judgment section judges whether or not the first target object is categorized into the specific category based on which side of the discriminant surface the first feature vector is present.

5. An object recognition apparatus according to claim 4, wherein the judgment section judges that the first target

object is categorized into the specific category when a distance between the first feature vector and the discriminant surface is greater than or equal to a predetermined threshold.

6. An object recognition apparatus according to claim 1, wherein the at least one predetermined image filter has directional selectivity, positional selectivity, and spatial frequency selectivity.

7. An object recognition apparatus according to claim 1, wherein the first image represents an intensity of light having a first wavelength band emitted or reflected by the first target object, and the second image represents an intensity of light having a second wavelength band different from the first wavelength band emitted or reflected by the first target object.

8. An object recognition apparatus according to claim 1, wherein the input section further inputs a fifth image representing the first target object using the first attribute and a sixth image representing the first target object using the second attribute, and the input section is configured so that the first image and the second image are captured at a first time, and the fifth image and the sixth image are captured a predetermined time after the first time.

9. An object recognition apparatus according to claim 1, wherein the input section is configured so that the first image is captured at a first site, and the second image is captured at a second site different from the first site.

10. An object recognition apparatus according to claim 1, wherein the input section further inputs a fifth image representing the first target object using the first attribute and a sixth image representing the first target object using the second attribute, and the input section is configured so that the first and second images are captured at a first site, and the fifth and sixth images are captured at a second site different from the first site.

11. An object recognition method, comprising the steps of:

(a) inputting a first image set including a predetermined number of images including a first image representing a first target object using a first attribute and a second image representing the first target object using a second attribute different from the first attribute, wherein the predetermined number is two or more;

(b) calculating a first feature vector in a feature space having at least one filter output value as a vector component, the at least one filter output value being obtained by applying at least one predetermined image filter to at least one predetermined position in the predetermined number of images in the first image set; and

(c) judging whether or not the first target object is categorized into a specific category based on a relationship between the first feature vector and predetermined discriminant parameters.

12. A program for causing a computer to perform an object recognition process, the process comprising the steps of:

(a) inputting a first image set including a predetermined number of images including a first image representing a first target object using a first attribute and a second image representing the first target object using

a second attribute different from the first attribute, wherein the predetermined number is two or more;

(b) calculating a first feature vector in a feature space having at least one filter output value as a vector component, the at least one filter output value being obtained by applying at least one predetermined image filter to at least one predetermined position in the predetermined number of images in the first image set; and

(c) judging whether or not the first target object is categorized into a specific category based on a relationship between the first feature vector and predetermined discriminant parameters.

13. A computer-readable recording medium storing a program for causing a computer to perform an object recognition process, the process comprising the steps of:

(a) inputting a first image set including a predetermined number of images including a first image representing a first target object using a first attribute and a second image representing the first target object using a second attribute different from the first attribute, wherein the predetermined number is two or more;

(b) calculating a first feature vector in a feature space having at least one filter output value as a vector component, the at least one filter output value being obtained by applying at least one predetermined image filter to at least one predetermined position in the predetermined number of images in the first image; and

(c) judging whether or not the first target object is categorized into a specific category based on a relationship between the first feature vector and predetermined discriminant parameters.